

We claim:

1. A handheld biopsy instrument comprising:
 - a. a hollow, biopsy, insertion needle having an axially extending open specimen port at its distal end,
 - b. an elongated, rotatable, tissue specimen cutter slidably received within 5 said biopsy insertion needle,
 - c. an elongated flexible push rod slidably received within said needle and parallel to said cutter, said push rod extending to the distal end of said needle,
 - d. means for applying a first vacuum within the distal end of said needle whereby a portion of the tissue to be sampled is drawn into said specimen port when 10 said needle is inserted into the tissue to be sampled,
 - e. means for advancing said cutter toward the distal end of said needle,
 - f. means for rotating said cutter as said cutter advances within said needle, whereby said cutter cuts and encapsulates the portion of said tissue contained within said specimen port,
- 15 g. means for advancing said flexible push rod axially toward the distal end of said needle,
 - h. means at the distal end of said needle for causing said push rod to turn 180 degrees thereby reversing its direction of movement whereby said push rod end enters said cutter, engages said encapsulated tissue specimen therein, thereby moving 20 said tissue specimen axially toward the proximal end of said cutter.

2. A powered, handheld biopsy instrument having a main body with a biopsy insertion needle extending therefrom, said main body comprising:

- a. a first and second elongated second drive shaft each extending from the proximal end of said instrument toward the distal end thereof,
- 5 b. said first drive shaft having a first non-threaded portion at the proximal end thereof, a middle portion having worm gear threads, and a second non-threaded portion adjacent the distal end of said first drive shaft,
- c. a first drive block having internal threads matching said worm gear threads, said first drive block positioned upon said first non-threaded portion of said first drive shaft,
- 10 d. a second drive block, juxtaposed said first drive block, having internal threads matching said worm gear threads, said second drive block positioned upon and threadingly engaging said worm gear threads,
- e. a hollow, elongated specimen tissue cutter extending coaxially into said 15 biopsy needle, said specimen cutter supported upon a pair of parallel journals extending lateral from said second drive block,
- f. a spur gear affixed to said specimen cutter for rotating said specimen cutter about said cutter's axial centerline, said spur gear positioned between said parallel journals of said second drive block,
- 20 g. aid second drive shaft comprising an elongated drive gear parallel to said specimen cutter and in engagement with said cutter spur gear whereby rotation of said drive gear causes rotation of said cutter,
- h. an elongated specimen push rod affixed, at its proximal end, to said first 25 drive block and extending through said biopsy needle and terminating at the distal end of said needle,

i. an elongated pin affixed, at its proximal end, to said first drive block and slidingly extending through said first drive block, said pin having a terminating head at its free distal end, and

j. a compressed coil spring, coaxial with said pin, positioned between said
30 drive blocks whereby said coil spring applies a biasing force tending to separate said drive blocks.